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## Organising Evidence for Biodiversity

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World Parks Congress  
*Monitoring conservation outcomes inside and outside protected areas*

Sydney, Australia, 17 November 2014

# Biodiversity data

Root rot  
*Phytophthora cinnamomi*



Banksia jewel beetle  
*Cyrioides imperialis*



Pathogen of

Larvae mine stems

Community member

## Banksia serrata woodland

Acacia terminalis  
Allocasuarina monilifera  
Banksia serrata  
Dillwynia glaberrima  
Epacris impressa  
Leptospermum glaucescens  
Leptospermum scoparium  
Leucopogon collinus  
Monotoca glauca  
Philotheca virgata  
Pimelea humilis

## ***Banksia serrata* L.f.**

= *Isostylis serrata* (L.f.) Britten

= *Sirmuelleria serrata* (L.f.) Kuntze

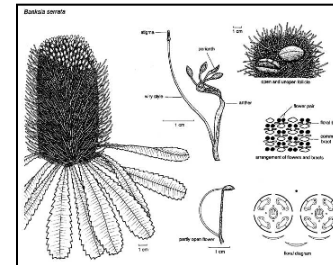
Old Man Banksia

Saw Banksia

Kingdom: Plantae  
Division: Magnoliophyta  
Family: Proteaceae  
Subfamily: Grevilleoideae  
Tribe: Banksieae  
Subtribe: Banksiinae  
Genus: *Banksia* L.f.

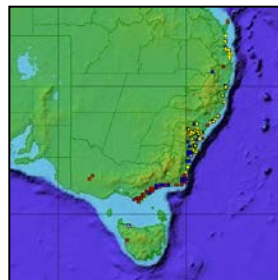
Named

Biology and ecology



Distribution

Literature



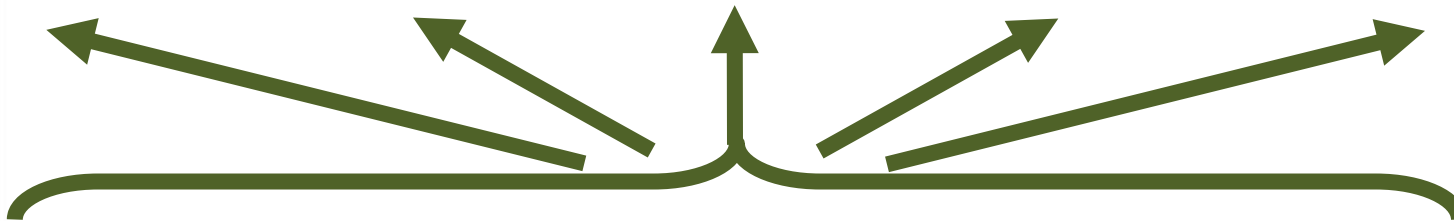
Molecular biology



# Sources and uses

## Uses of biodiversity data

Taxonomy, conservation, biosecurity, land-use planning, climate change response, crop development, resource management, materials development, forensics ...



## Sources of biodiversity data

Collections, field observations, monitoring activities, genomics, citizen science, remote sensing, expert knowledge, historical literature, ...



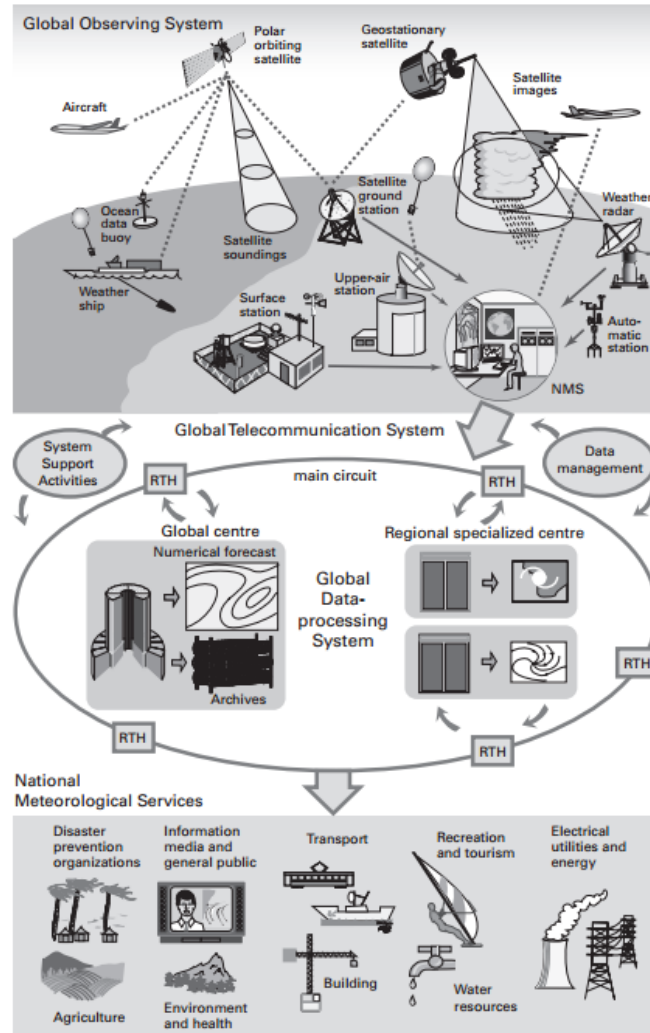


# Data as evidence for models

## A VAST MACHINE

COMPUTER MODELS, CLIMATE DATA, AND  
THE POLITICS OF GLOBAL WARMING

PAUL N. EDWARDS



# Biodiversity evidence and policy

POLICY	National Governments					Implementation & monitoring
	<i>Strategic Plan for Biodiversity / Aichi Targets</i>					Commitments
	CBD	FAO	CMS	CITES	RAMSAR	
SCIENCE	Science-Policy Interface					Coordinated analyses
	IPBES					
	IUCN	UNEP-WCMC		Future Earth		Expert assessments
	<i>Taxonomic Research</i>	<i>Ecological Research</i>	<i>Conservation Research</i>	<i>Agricultural Research</i>	<i>Human Health</i>	<i>Climate Change</i>
DATA	Data-Science Interface					Modeled variables
	GEO BON		Map of Life			
	GBIF	Catalogue of Life		TraitBank	INSDC	Data catalogues
	<i>Natural History Collections</i>	<i>Field Surveys</i>	<i>Laboratory Data</i>	<i>Citizen Science</i>	<i>Remote Sensing</i>	<i>Literature</i>
						Source data



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## Global Biodiversity Information Facility

Free and Open Access to Biodiversity Data

515,702,963  
OCCURRENCES

1,454,694  
SPECIES

13,818  
DATASETS

640  
DATA PUBLISHERS

Sharing biodiversity data for re-use

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Capacity project generates new guide on camera trapping

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**NOV 17** 2nd International Ocean Research Conference

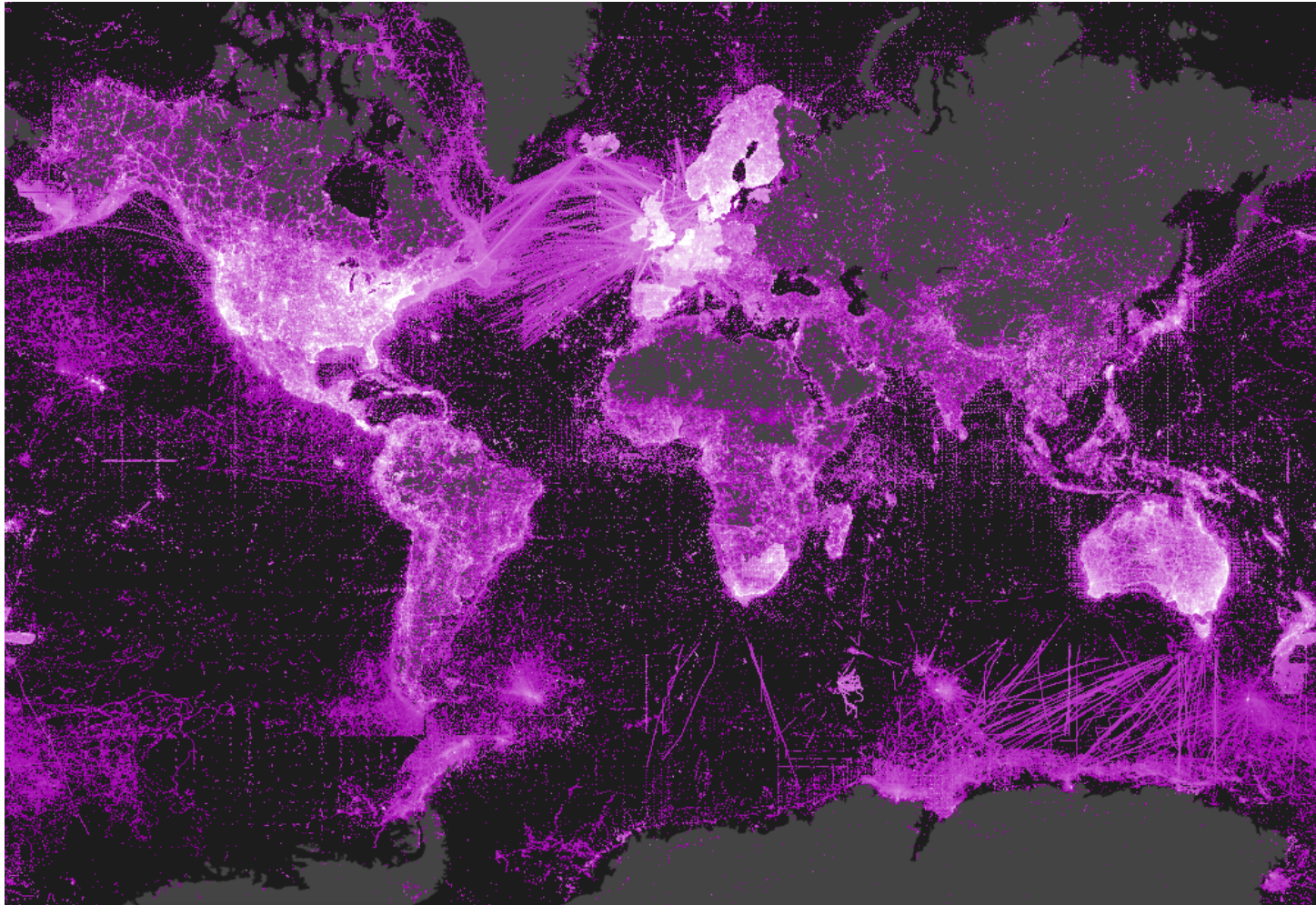
# Three areas for focus

1. Expand coverage and completeness
2. Curate data for persistent use
3. Derive meaningful variables and indicators



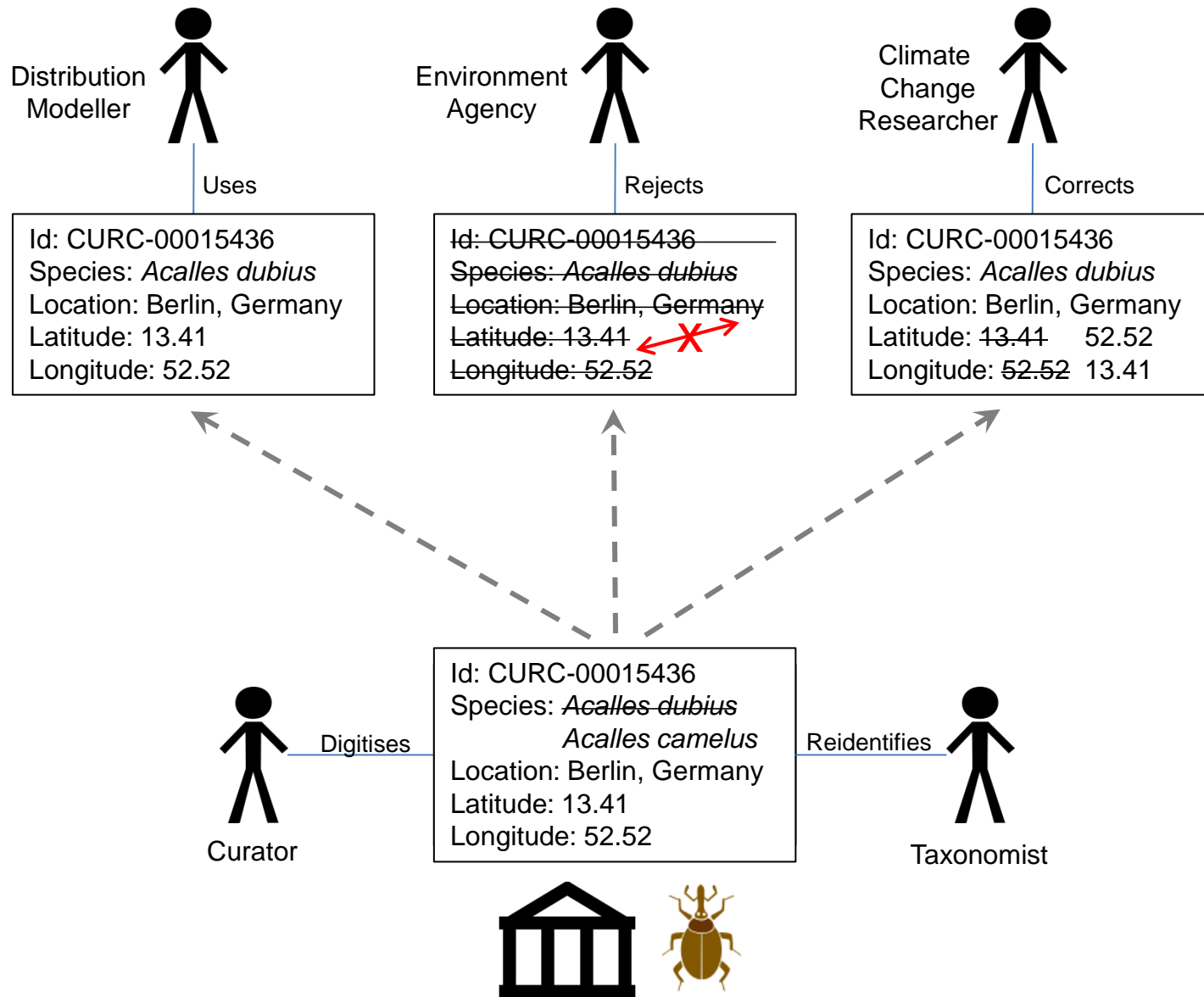


# Data availability and coverage

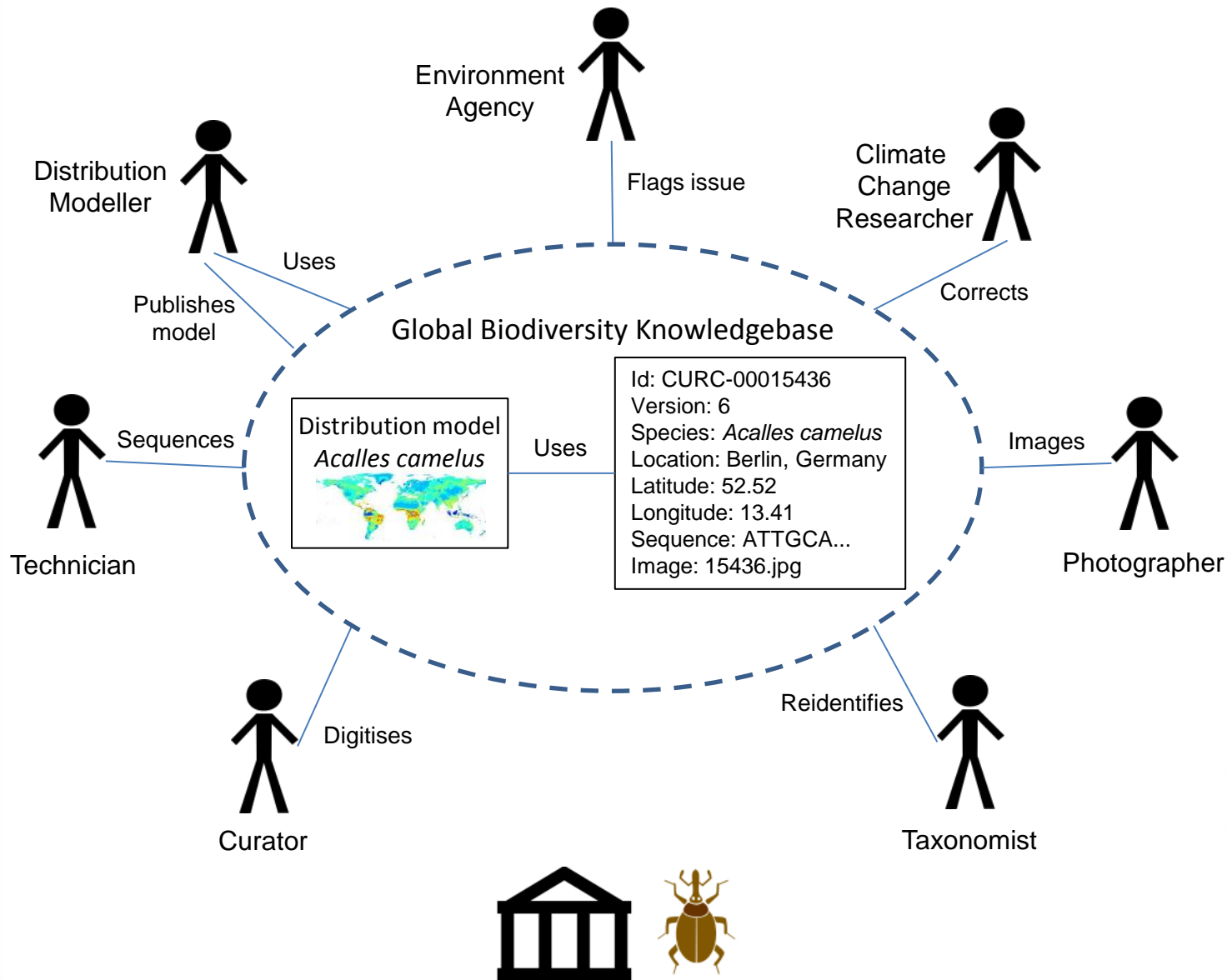




# Uncoordinated data review



# Community knowledge management



# Modeled variables & indicators

- Estimate biodiversity patterns
  - In all places
  - Past, present, future
  - At variable scales
- Develop useful indicators
  - Small set
  - Practical, achievable, realistic
  - Spatially explicit
  - Comparable across regions and scales
  - Meaningful for conservation
  - Suitable for broad adoption







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# Thank you

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